- ***To run the program (do it every time when you want to use the TPB Tool box)***

1. In TransCAD, go to ***Tools-Add Ins*** menu
2. Double click on ***TPB Tools*** in the Add-ins list

- ***To prepare your data before using the tools***

1. You need the following minimal data fields in you data table:

FIELD_NAME	*TYPE*	*WIDTH*
ID	Integer (4 bytes)	10
Length	Real (8 bytes)	10
Dir	Integer (2 bytes)	2
Road Name	Character	20
Capacity	Integer (4 bytes)	10
Lane	Integer (1 bytes)	6
Speed	Integer (1 bytes)	6
Facility Type	Character	16
Traffic Count	Integer (4 bytes)	10
Functional Class	Character	16
Screenline	Character	16
TOT_Flow	Integer (4 bytes)	10

2. You can delete the [Alt Number] data field if you have it in your table. (The field [Alt Number] is not needed anymore. Instead, the macro will automatically add a new data field AltNum for you.)

Note:
1. The data field names are case sensitive. They need to be added in your table as exactly same as shown above.
2. The data field types have to be exactly same as shown above as well.
3. The Capacity and Traffic Count are 2-way Capacity and Traffic Count.

- ***To use the Data Manager Toolbox***

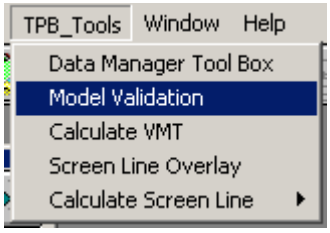
Tool descriptions		
Button	***What does it do***	***How to use it***
	Calculates Travel Time, 1-Way Capacity, 1-Way ADT, Facility Code and Functional Classification Code.	Click on the button.
	Enter data for your base line layer.	Select the links that you want to enter your data by using the TransCAD Selection tools then click on the button.
	Build a base line layer.	Click on the button.
	Identify the future new links.	Select the future new links by using the TransCAD Selection tools then click on the button
	Enter data for alternative/future year line layer.	Select the links that you want to enter your data by using the TransCAD Selection tools then click on the button.
	Build an alternative/future year line layer.	Click on the button.

Note:

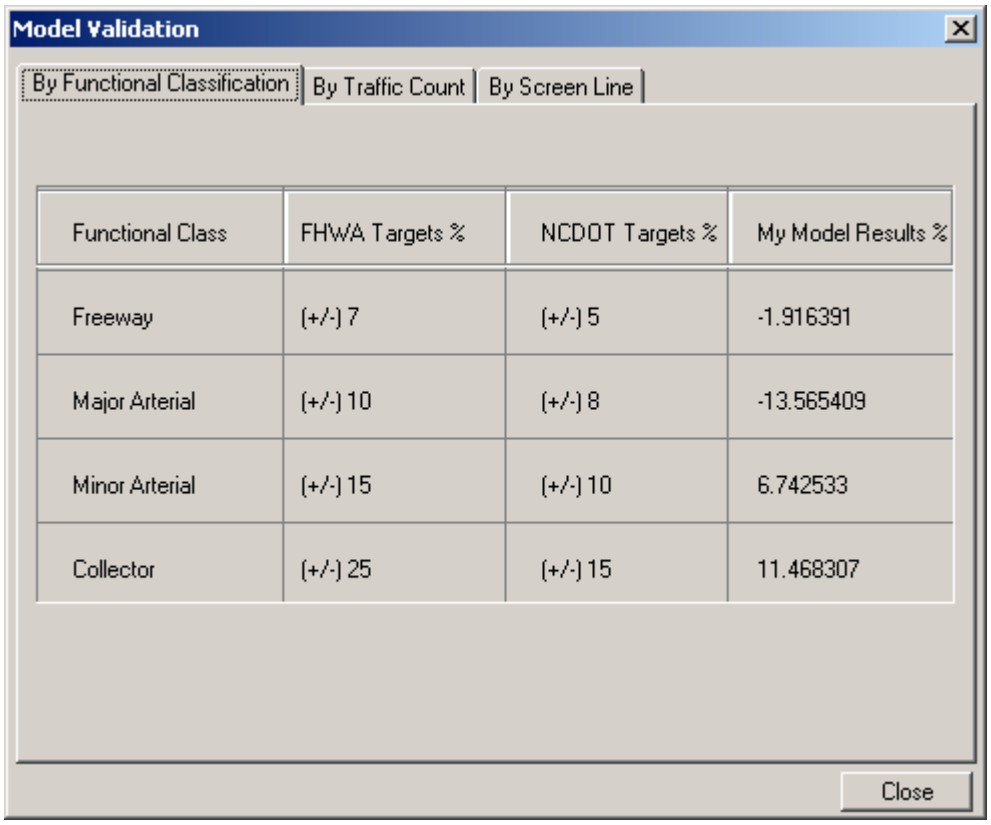
The values of the Facility Type are not finalized in this release.

- ***To use the Model Validation Tool***

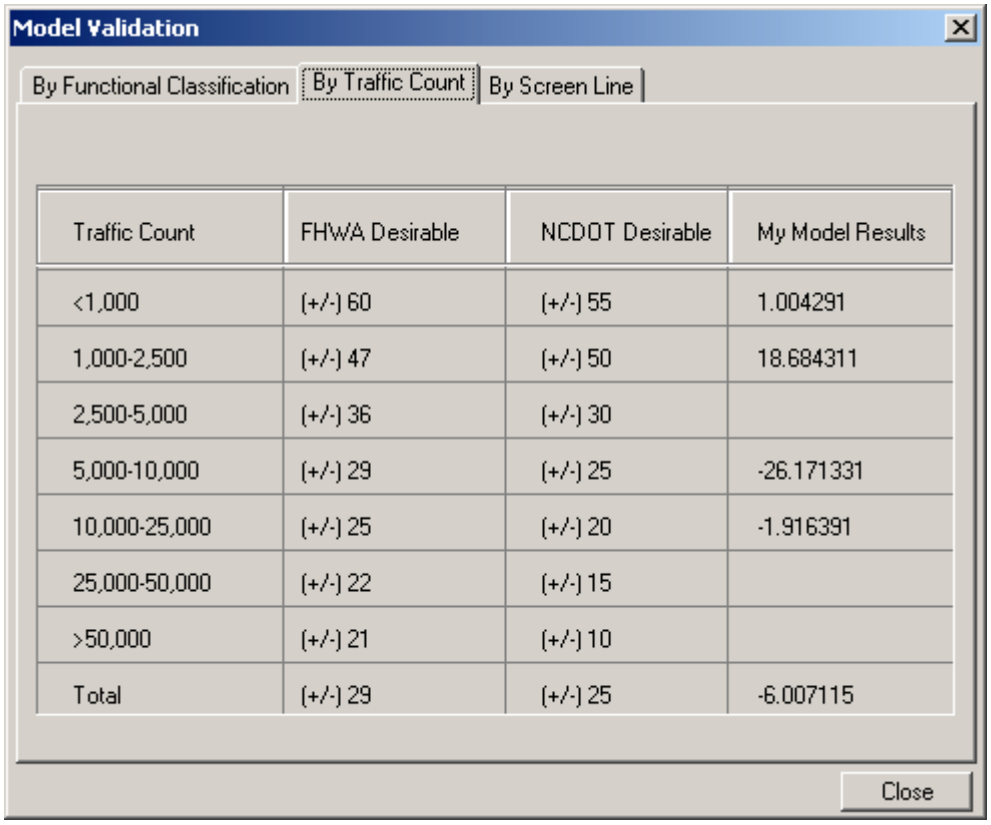
1. Open your model network layer in TransCAD
2. Join the **loaded volumes data** to your model network
   Note: Make sure that you have "**TOT_Flow**" data field in your table.
3. Choose ***Model Validation*** from the **TPB_Tools** drop-down menu in TransCAD as shown below:

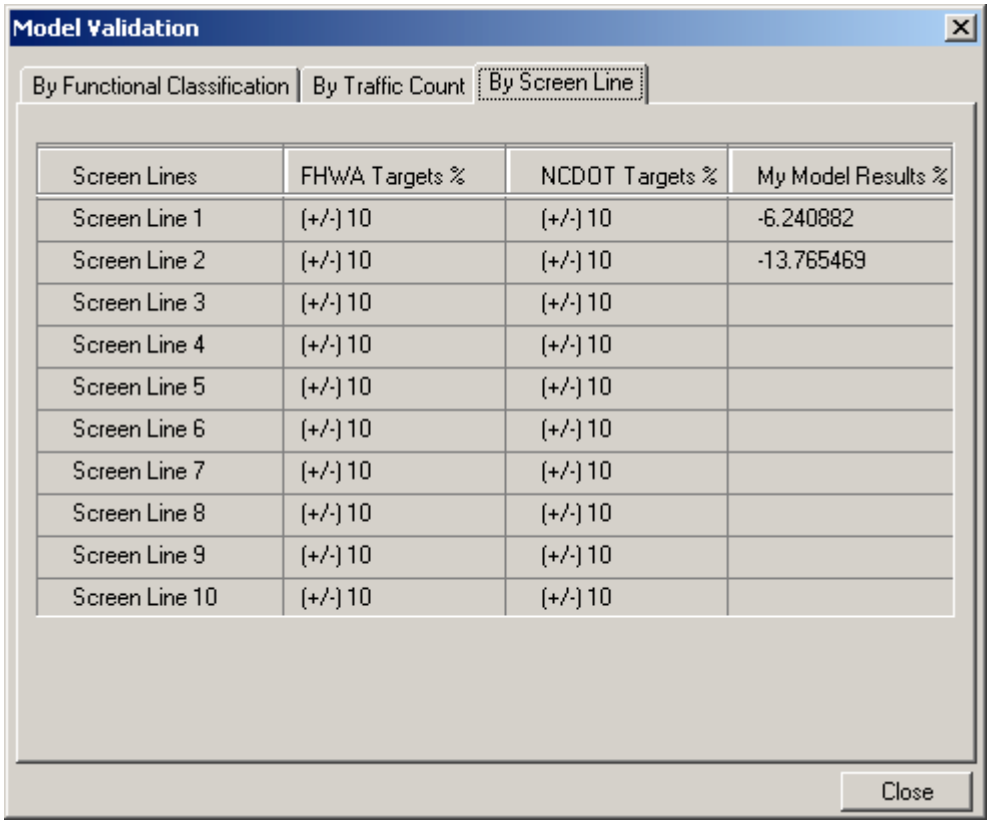


4. The program will validate your model by Functional Classification, by Traffic Count and by Screen Line as shown below (calculate ((total flow-traffic count)/traffic count%) for each category):



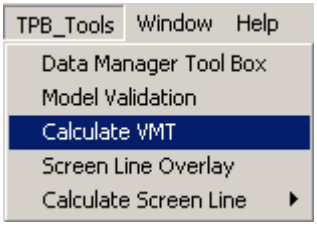
Functional Class	FHWA Targets %	NCDOT Targets %	My Model Results %
Freeway	(+/-) 7	(+/-) 5	-1.916391
Major Arterial	(+/-) 10	(+/-) 8	-13.565409
Minor Arterial	(+/-) 15	(+/-) 10	6.742533
Collector	(+/-) 25	(+/-) 15	11.468307


Model Validation
By Functional Classification
By Traffic Count
By Screen Line
Traffic Count
FHWA Desirable
NCDOT Desirable
My Model Results
<1,000
(+/-) 60
(+/-) 55
1.004291
1,000-2,500
(+/-) 47
(+/-) 50
18.684311
2,500-5,000
(+/-) 36
(+/-) 30
5,000-10,000
(+/-) 29
(+/-) 25
-26.171331
10,000-25,000
(+/-) 25
(+/-) 20
-1.916391
25,000-50,000
(+/-) 22
(+/-) 15
>50,000
(+/-) 21
(+/-) 10
Total
(+/-) 29
(+/-) 25
-6.007115
Close

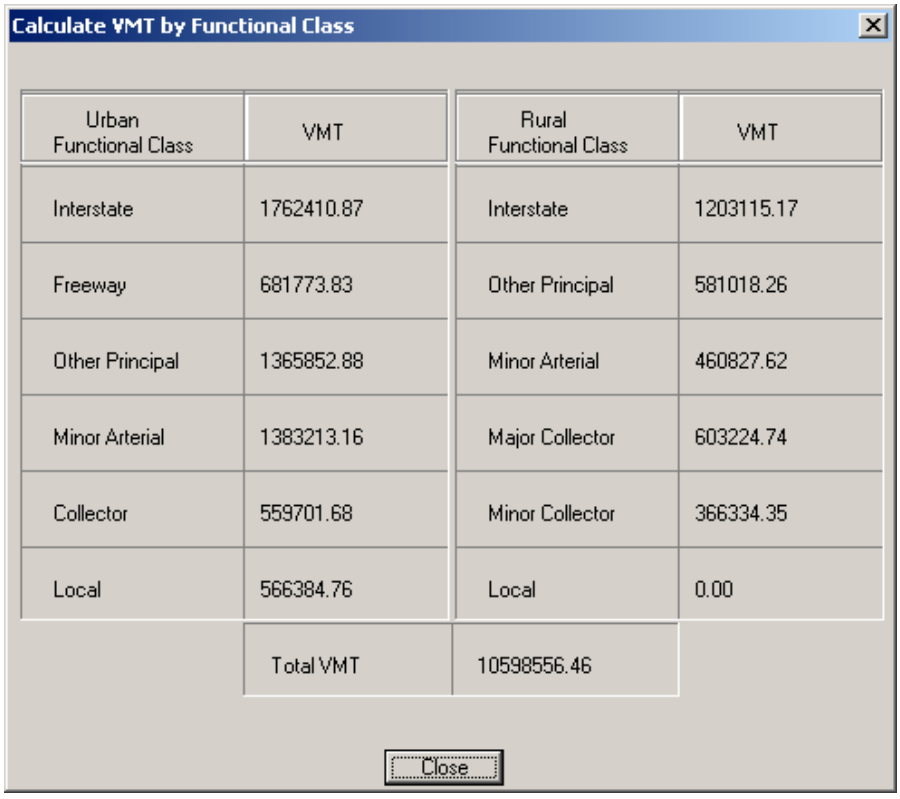

Model Validation
By Functional Classification
By Traffic Count
By Screen Line
Screen Lines
FHWA Targets %
NCDOT Targets %
My Model Results %
Screen Line 1
(+/-) 10
(+/-) 10
-6.240882
Screen Line 2
(+/-) 10
(+/-) 10
-13.765469
Screen Line 3
(+/-) 10
(+/-) 10
Screen Line 4
(+/-) 10
(+/-) 10
Screen Line 5
(+/-) 10
(+/-) 10
Screen Line 6
(+/-) 10
(+/-) 10
Screen Line 7
(+/-) 10
(+/-) 10
Screen Line 8
(+/-) 10
(+/-) 10
Screen Line 9
(+/-) 10
(+/-) 10
Screen Line 10
(+/-) 10
(+/-) 10
Close

- ***To use the Calculate VMT Tool***

1. Open your model network layer in TransCAD
2. Join the **loaded volumes data** to your model network
3. **Note**: Make sure that you have "**TOT_Flow**" data field in your table.
4. Choose ***Calculate VMT*** from the **TPB_Tools** drop-down menu in TransCAD as shown below:



5. The calculation should be displayed similar like this:



- ***To use the Screen Line Overlay Tool***

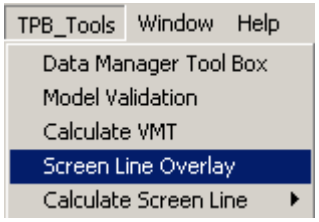
1. Open your model map that contains a model network layer and a screen line layer in TransCAD
2. You need the following minimal data fields in your model network layer:

FIELD_NAME	*TYPE*	*WIDTH*
ID	Integer (4 bytes)	10
Length	Real (8 bytes)	10
Dir	Integer (2 bytes)	2
Road Name	Character	20
Capacity	Integer (4 bytes)	10
Lane	Integer (1 bytes)	6
Speed	Integer (1 bytes)	6
Facility Type	Character	16
Traffic Count	Integer (4 bytes)	10
Functional Class	Character	16
Screenline	Character	16
TOT_Flow	Integer (4 bytes)	10

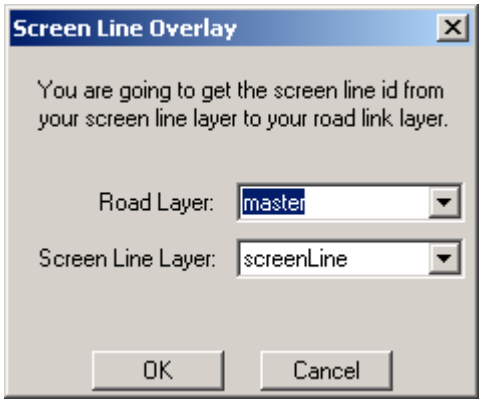
3. You need the following minimal data fields in your screen line layer:

FIELD_NAME	*TYPE*	*WIDTH*
ID	Integer (4 bytes)	10
Length	Real (8 bytes)	10
Dir	Integer (2 bytes)	2
Screenline ID	Character	16

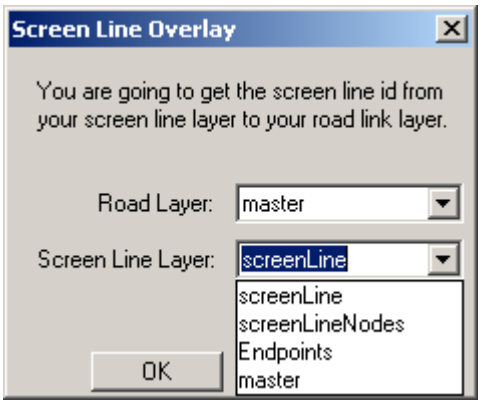
4. Choose ***Screen Line Overlay*** from the **TPB_Tools** drop-down menu in TransCAD as shown below:



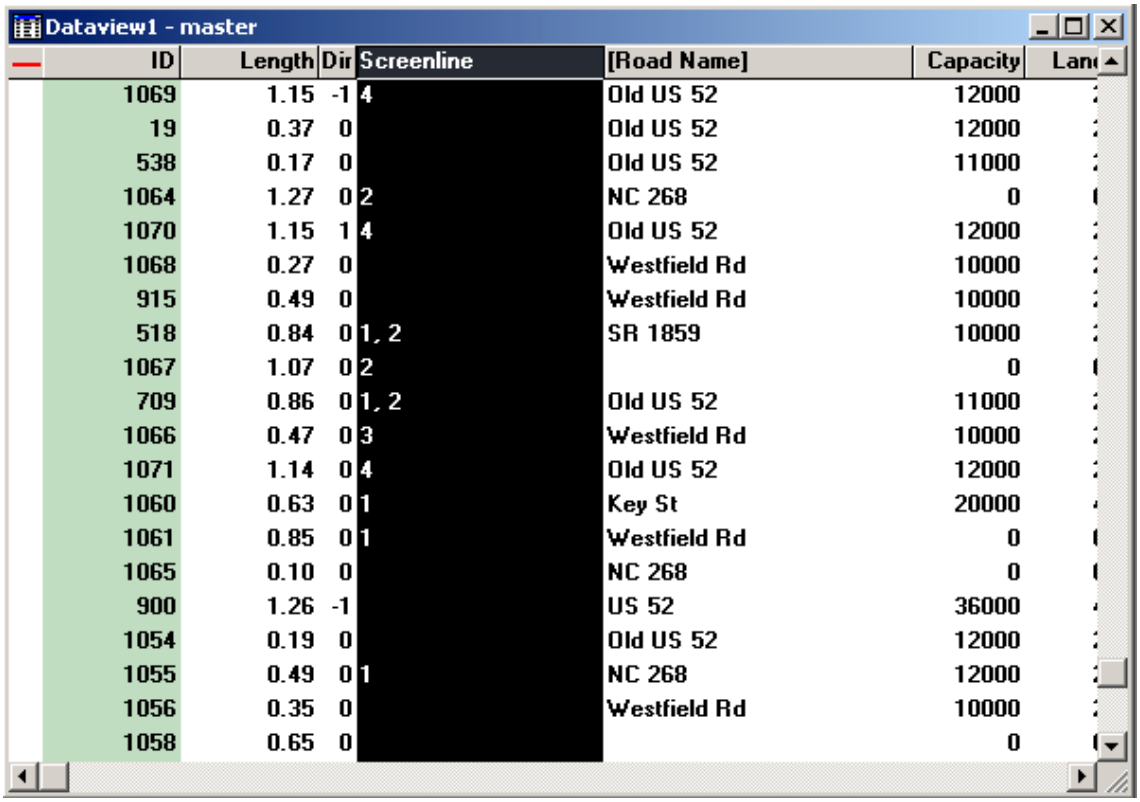
5. The **Screen Line Overlay** dialog box will be displayed as the following:



6. Choose your road layer and screen line layer from the drop down lists and click on OK



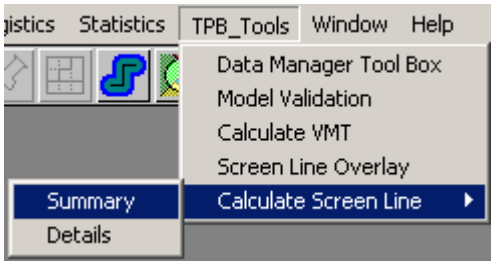
7. The **Screenline** data field in your road layer will be filled with the screen line ids that the link crosses. The data field will look similar as the following if you open a data view table of your road layer:



ID	Length	Dir	Screenline	[Road Name]	Capacity	Lan
1069	1.15	-1	4	Old US 52	12000	
19	0.37	0		Old US 52	12000	
538	0.17	0		Old US 52	11000	
1064	1.27	0	2	NC 268	0	
1070	1.15	1	4	Old US 52	12000	
1068	0.27	0		Westfield Rd	10000	
915	0.49	0		Westfield Rd	10000	
518	0.84	0	1, 2	SR 1859	10000	
1067	1.07	0	2		0	
709	0.86	0	1, 2	Old US 52	11000	
1066	0.47	0	3	Westfield Rd	10000	
1071	1.14	0	4	Old US 52	12000	
1060	0.63	0	1	Key St	20000	
1061	0.85	0	1	Westfield Rd	0	
1065	0.10	0		NC 268	0	
900	1.26	-1		US 52	36000	
1054	0.19	0		Old US 52	12000	
1055	0.49	0	1	NC 268	12000	
1056	0.35	0		Westfield Rd	10000	
1058	0.65	0			0	

- ***To use the Calculate Screen Line-Summary Tool***

1. Open your model network layer in TransCAD
2. Choose ***Calculate Screen Line-Summary*** from the **TPB_Tools** drop-down menu in TransCAD as shown below:



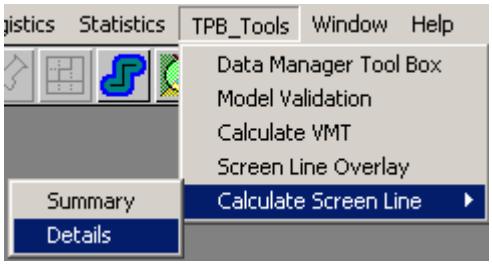
3. A data view table will displayed with the total traffic flow, total traffic count and diffsum% ((total traffic flow - total traffic count)/ total traffic count %) for each screen line. It's similar like the following:

Dataview1 - Screen Line Calculation Summary

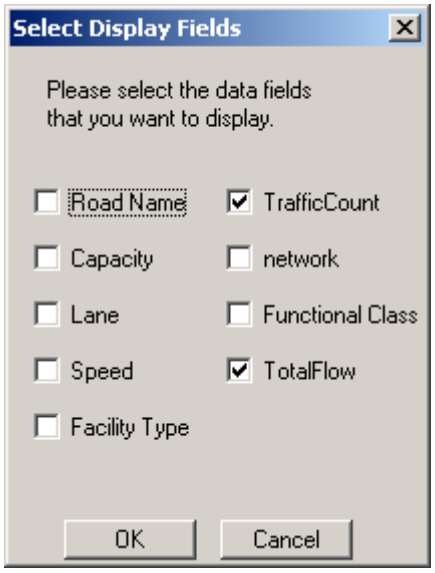
ScreenLine	TotalFlowSum	TrafficCountSum	[DiffSum%]
1	10329	20658	-50.00
2	6017	12034	-50.00
3	6732	13464	-50.00
4	8217	16434	-50.00

- ***To use the Calculate Screen Line-Details Tool***

1. Open your model network layer in TransCAD
2. Choose ***Calculate Screen Line-Details*** from the **TPB_Tools** drop-down menu in TransCAD as shown below:



3. The Select Display Fields dialog box will be display as the following:



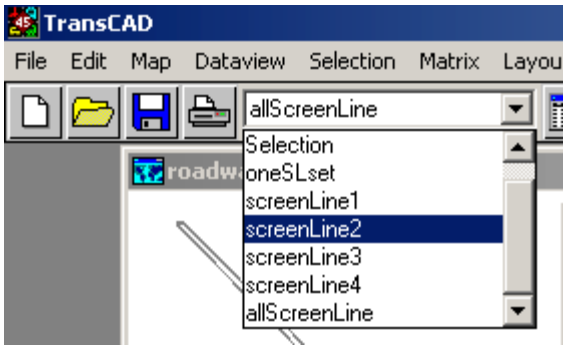
4. Select the data fields that you want to see in the Screen Line Calculation table and click on OK

5. A data view table will be displayed with the screen line calculation ((traffic flow - traffic count)/ traffic count %) for each link that crosses a screen line. It's similar as the following:

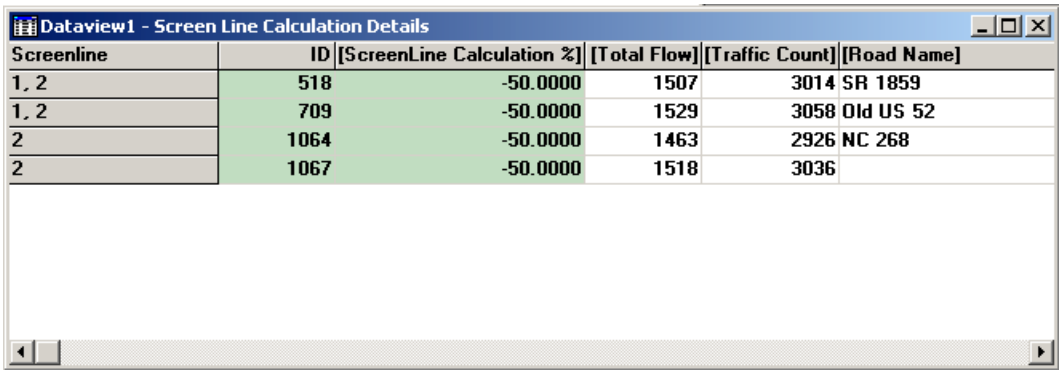
Dataview1 - Screen Line Calculation Details

Screenline	ID	[ScreenLine Calculation %]	[Total Flow]	[Traffic Count]	[Road Name]
1	1060	-50.0000	1562	3124	Key St
1	1061	-50.0000	1573	3146	Westfield Rd
1	1055	-50.0000	1617	3234	NC 268
1, 2	518	-50.0000	1507	3014	SR 1859
1, 2	709	-50.0000	1529	3058	Old US 52
1, 3, 4	883	-50.0000	1210	2420	US 52
1, 3, 4	854	-50.0000	1331	2662	US 52
2	1064	-50.0000	1463	2926	NC 268
2	1067	-50.0000	1518	3036	
3	830	-50.0000	1287	2574	Old US 52
3	831	-50.0000	1364	2728	Old US 52
3	1066	-50.0000	1540	3080	Westfield Rd
4	885	-50.0000	1221	2442	Key St
4	1069	-50.0000	1430	2860	Old US 52
4	1070	-50.0000	1474	2948	Old US 52
4	1071	-50.0000	1551	3102	Old US 52

6. If you want to choose the display for one screen line at a time, select the screenline from the dropdown list shown as the following:



7. A data view table will be displayed with the selected screen line calculation ((traffic flow - traffic count)/ traffic count %) for each link that crosses the screen line. It's similar as the following:



Dataview1 - Screen Line Calculation Details

Screenline	ID	[ScreenLine Calculation %]	[Total Flow]	[Traffic Count]	[Road Name]
1, 2	518	-50.0000	1507	3014	SR 1859
1, 2	709	-50.0000	1529	3058	Old US 52
2	1064	-50.0000	1463	2926	NC 268
2	1067	-50.0000	1518	3036	